

### **REMARKS/ARGUMENTS**

Claims 1-11 are currently pending in this application. Claims 1, 4 and 6 have been amended. Claims 3 and 5 has been cancelled. New claim 12 has been added. Applicants respectfully request reconsideration in view of the above amendments and the following remarks.

#### **Applicants' Response to 35 U.S.C. §103 Rejection over Ota in view of Bingel**

Claims 1-9 and 11 are rejected under 35 U.S.C. § 103(a) as allegedly being obvious Japanese Patent No. JP 11-109613 to Ota et al. (hereinafter "Ota") in view of U.S. Patent No. 5,739,376 to Bingel (hereinafter "Bingel"). Applicants respectfully submit that the combination of references fails to render the claims, as amended herein, *prima facie* obvious.

The Examiner alleges that:

Bingel teaches the equivalence of a fullerene derivative having one malonic ester residue and a fullerene derivative having two or more malonic ester residues in terms of solubility. Based on this teaching of equivalency, it would have been obvious to one skilled in the art to obtain Ota's fullerene derivative having two or more malonic ester residues. Thus, Ota in view of Bingel would render obvious present inventions of claims 1-9 and 11.

(Office Action of 4/3/2008, at page 3) (citations omitted).

Claim 1 has been amended to further distinguish the present invention. In particular, a recitation was added to claim 1 requiring the fullerene derivative to include the following compound: a radiation sensitive acid generator (B); an organic solvent; and a fullerene derivative (A) is a compound, expressed by the general formula (2).

Since the fullerene derivative of the present invention expressed by the general formula (2) includes two or more malonic ester residues, wherein n is greater than or equal to 2, and exhibits a superior solubility in an organic solvent, a sufficient amount of fullerene can be

formulated in the resist composition. As a result, a resist pattern having superior etching resistance, sensibility and remarkably reduced edge roughness can be formed.

As asserted by the Examiner, Ota discloses fullerene derivatives having  $n$  equal 1, but discloses nothing on fullerene derivatives having  $n$  greater than or equal to 2.

As can be seen from Comparative Example 1 of the present Specification, the fullerene derivative of Ota, in which the substituent  $n$  is 1, was undissolved in the resist solvent, and from Comparative Example 4, in the case of the fullerene derivative of Ota, the pattern configuration was not developed.

Bingel (Column 1, lines 39 to 45) discloses an invention concerning a fullerene derivative having functional groups, however, the use thereof is not disclosed.

Examples 1 to 40 disclose a wide variety of fullerene derivatives including various functional groups, but among 40 examples, only Examples 2 and 14 are structures including a fullerene derivative in which  $n$  is greater than or equal to 2 is actually disclosed. Only in one example is a fullerene derivative including malonic ester residues disclosed.

Bingel has a disclosure concerning improving the physical properties, such as solubility and the like. (See Column 1, lines 39-45). However, it can be considered that Bingel, which discloses a wide variety of fullerene derivatives including various functional groups, focuses on the relationship between the structures of the functional groups and solubility, while the relationship between the number of subscript  $n$  and the solubility remains unrecognized.

The solubility of a fullerene derivative depends greatly on the type of compound used. Bingel discloses nothing on the extent of the solubility with respect to the type of compound used. Furthermore, nothing is disclosed or even implied in Bingel regarding the use of fullerene derivatives in the resist composition, or the type of fullerene derivative to render the solubility in

solvent necessary to obtain the effects required by the present invention.

Therefore, adopting the fullerene derivatives disclosed in Bingel, into the resist composition of Ota is not obvious, nor would one of ordinary skill in the art combine the two with any reasonable expectation of success.

Each of the references, either alone or in combination, fails to render claims 1-9 and 11 obvious. As such, for the reasons expressed above, Applicants respectfully request reconsideration and withdrawal of the Section 103 rejection over Ota in combination with Bingel.

**Applicants' Response to 35 U.S.C. §103 Rejection over Ota in view of Bingel and further in view of Sato**

Claim 10 is rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Ota in view of Bingel and further in view of U.S. Patent No. 6,159,652 to Sato et al. (hereinafter "Sato"). Applicants respectfully submit that the combination of references fails to render the claims, as amended herein, *prima facie* obvious.

The Examiner alleges that:

Although Ota in view of Bingel does not teach present organic carboxylic acid, use of such compound in a photoresist composition is already known in the art to provide high sensitivity and high resolution for the composition. Thus, it would have been obvious to one skilled in the art to use an organic carboxylic acid in Ota's photoresist composition in order to provide high sensitivity and high resolution. Therefore, Ota in view of Bingel would render obvious present claim 10.

(Office Action of 4/3/2008, at pages 3-4) (citations omitted).

Claim 10 depends upon claim 1. Each of the references, either alone or in combination, fails to render claim 1, or any that depend therefrom, obvious. As such, for the reasons

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expressed above, Applicants respectfully request reconsideration and withdrawal of the Section 103 rejection over Ota in view of Bingel and further in view of Sato.

In addition, new claim 12 has been added. Claim 12 provides an additional element of patentability and is fully supported by the specification as originally filed. (See Instant Specification, paragraph [0034]).

Therefore, Applicants respectfully submit that claims 1, 2, 4, 6-11 and new claim 12, as presented in this amendment, are patentably distinct. This application is believed to be in condition for allowance.

Favorable action thereon is therefore respectfully solicited. Should the examiner have any questions or comments concerning the above, the examiner is respectfully invited to contact the undersigned attorney at the telephone number given below.

The Commissioner is hereby authorized to charge payment of any additional fees associated with this communication, or credit any overpayment, to Deposit Account No. 08-2461. Such authorization includes authorization to charge fees for extensions of time, if any, under 37 C.F.R. § 1.17 and also should be treated as a constructive petition for an extension of time in this reply or any future reply pursuant to 37 C.F.R. § 1.136.

Respectfully submitted



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